

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2001-151622

(43)Date of publication of application : 05.06.2001

(51)Int.Cl.

A61K 7/00

(21)Application number : 11-300675

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(22)Date of filing : 22.10.1999

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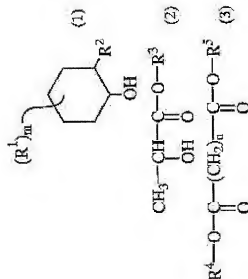
Priority number : 11263410 Priority date : 17.09.1999 Priority country : JP

## (54) REFRESHING AGENT COMPOSITION

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain a refreshing agent composition having lasting refreshing feeling without irritating feeling and characteristic odor and excellent in stability with time and use feeling.

SOLUTION: This refreshing agent is characterized by including one or more kinds of cyclohexanol derivatives represented by a general formula (1) [wherein R<sup>1</sup> is methyl, ethyl or isopropyl group which has hydroxy group or no hydroxy group and may be bonded to same cyclic carbon atom; R<sup>2</sup> is CH<sub>2</sub>OH, CH(OH)CH<sub>3</sub> or C(OH)CH<sub>3</sub>CH<sub>3</sub>; (m) is an integer of 1-3], one or more kinds of compounds selected from a group consisting of lactic acid alkyl esters represented by a general formula (2) [wherein R<sup>3</sup> is a 2-18C straight-chain or branched chain alkyl group] or dibasic acid dialkyl esters represented by a general formula (3) [wherein R<sup>4</sup> and R<sup>5</sup> are each a 2-18C alkyl group and (n) is an integer of 2-8] and one or more kinds of polyhydric alcohols.



(10) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開番号

特開2001-151622

(P2001-151622A)

(43) 公開日 平成13年8月5日(2001.8.5)

(51) Int. Cl.<sup>7</sup>

識別記号

F I

サーチコード<sup>\*</sup>(参考)

A 61 K 7/00

A 61 K 7/00

C 4 C 0 8 3

W

審査請求 有 請求項の数 5 O L (全 7 頁)

(21) 出願番号 特願平11-300675

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(22) 出願日 平成11年10月22日(1999.10.22)

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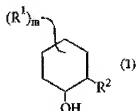
(54) 【発明の名称】 清涼剤組成物

(57) 【要約】

【課題】 刺激感や特異臭が無く持続的な優れた清涼感を有し、経時的安定性及び使用感に優れた清涼剤組成物を提供する。

【解決手段】 一般式(1)で表されるシクロヘキサノール誘導体の一種以上と、一般式(2)で表される乳酸アルキルエステル又は一般式(3)で表される二塩基酸ジアルキルエステルからなる群より選ばれた一種以上と、多価アルコールの一種以上とを含有すること特徴とする清涼剤組成物。

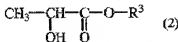
【化1】



(但し、式中、R<sup>1</sup>は水酸基を有する／有さない、メチル、エチル又はイソプロピル基であり、同一の環状炭素

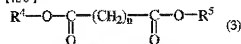
原子に二つ結合しているもよい。R<sup>1</sup>はCH<sub>2</sub>OH、CH(OH)CH<sub>2</sub>又はC(OH)(CH<sub>2</sub>)<sub>m</sub>である。mは1～3の整数である。)

【化2】



(但し、式中、R<sup>1</sup>は炭素数2～18の直鎖又は分岐鎖のアルキル基。)

【化3】



(但し、式中、R<sup>4</sup>及びR<sup>5</sup>は炭素数2～18のアルキル基であり、nは2～8の整数を示す。)

Application number: JP2003-573944

Your Ref: 4.066JP

Our Ref: 49706/PCT

## **Translation of the relevant part of D2**

### **REFRESHING AGENT COMPOSITION**

#### **Technical Field**

The present invention relates to a refreshing composition and cosmetic product, in particular to a refreshing composition and cosmetic product having lasting refreshing feeling without irritating feeling and characteristic odor.

#### **Background of Art**

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Cyclohexanol derivatives such as 2-hydroxymethyl-3,3,5-trimethylcyclohexanol or 2-hydroxymethyl-3,5,5-trimethylcyclohexanol are highly crystalline, and thus when used as an aqueous solution, an ethanol solution, or a composition for external application to skin, the problem of formation of crystal precipitation over time has been raised. In addition, when used in a large amount as a composition for external application, there has been a problem of discomfort during use, such as the experiencing of stickiness.

#### **Problems to be Solved by the Invention**

A purpose of the present invention is to provide a refrigerant composition which is free from stimulation or characteristic odor, stably including cyclohexanol derivatives such as 2-hydroxymethyl-3,3,5-trimethylcyclohexanol or 2-hydroxymethyl-3,5,5-trimethylcyclohexanol provided with a persistent and excellent refreshing feeling, and also excellent in terms of usability.

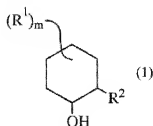
#### **Means for Solving the Problems**

The present inventors studied intensively and extensively in order to achieve the

above-mentioned purpose and discovered, as a result, that by using cyclohexanol derivatives such as 2-hydroxymethyl-3,3,5-trimethylcyclohexanol and 2-hydroxymethyl-3,5,5-trimethylcyclohexanol, specific esters and polyhydric alcohols, a refrigerant composition can be obtained which is free from stimulation or characteristic odor, excellent in terms of persistency of refreshing feeling, and also excellent in terms of stability over time and usability.

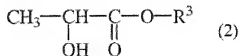
That is, the present invention provides a refrigerant composition and cosmetic product characterized by containing:

(A) at least one cyclohexanol derivative represented by the general formula (1);



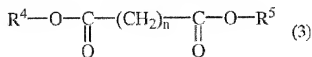
in which,  $R^1$  represents methyl, ethyl or isopropyl which may be substituted with hydroxy, and two  $R^1$  groups may be bonded to the same carbon atom contained in the ring;  $R^2$  represents  $\text{CH}_2\text{OH}$ ,  $\text{CH}(\text{OH})\text{CH}_3$  or  $\text{C}(\text{OH})\text{CH}_3\text{CH}_3$ ; and  $m$  represents an integer of 1 to 3,

(B) one or more of the materials selected from lactic acid alkyl esters represented by the general formula (2):



in which,  $R^3$  represents a linear or branched alkyl group of 2 to 18 carbon atoms,

or dibasic acid dialkyl esters represented by the general formula (3):



in which,  $R^4$  and  $R^5$  represent an alkyl group of 2 to 18 carbon atoms, and  $n$

represents an integer of 2 to 8,

and (C) one or more polyhydric alcohols.

In addition, the present invention is the above-mentioned refrigerant composition characterized in that (A) is either 2-hydroxymethyl-3,3,5-trimethylcyclohexanol or 2-hydroxymethyl-3,5,5-trimethylcyclohexanol.

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Examples of the lactic acid alkyl ester represented by the general formula (2), which is the component (B) of the present invention, include ethyl lactate, isobutyl lactate, lauryl lactate, myristyl lactate, cetyl lactate and octyldodecyl lactate. In addition, preferred examples thereof which are in liquid forms at 20 °C and are used for general purposes in a cosmetic product or the like include lauryl lactate and octyldodecyl lactate.

Examples of the dibasic acid dialkyl esters represented by the general formula (3) include diethyl succinate, dihexyl succinate, succinic acid diisopropyl succinate, di(2-diethylhexyl) succinate, dipropyl adipate, diisopropyl adipate, diisobutyl adipate, di(2-ethylhexyl) adipate, diethyl sebacate and diisopropyl sebacate. Furthermore, preferred examples thereof which are in liquid forms at 20 °C and are used for general purposes in a cosmetic product or the like include di(2-ethylhexyl) succinate, diisopropyl adipate, diisobutyl adipate, di(2-ethylhexyl) adipate, diethyl sebacate and diisopropyl sebacate. One or more of these esters can be used in the refrigerant composition of the present invention.

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Although the amount of each component mixed in the refrigerant composition of the present invention varies depending on the conditions of use or the like, it is preferable that 0.01 to 30% by weight (hereafter, abbreviated as wt.%) of the component (A), 0.01 to 30 wt.% of the component (B), and 0.1 to 30 wt.% of the component (C) are contained on the basis of the total amount of the final composition. It is further preferable that the amount of component (B) mixed is 1/3 or more of the amount of component (A). There may be cases where the effects of the present invention cannot be attained satisfactorily when the amount of component (B) mixed is less than the above-mentioned level.

The refrigerant composition of the present invention can be used in various forms such

as an aqueous solution, a solubilized form, an emulsified form and a dispersed form. Further, the composition can be used in cosmetic products, quasi drugs or pharmaceutical products etc. as a lotion used for the human skin, scalp, hair or oral cavity, an emulsion, cream, packs, a cleanser, a bath agent, a foundation, a lip stick, a shampoo, a rinse, a hair conditioner, a toothpaste, a mouth freshener, a cologne, a poultice or the like.

Further, in the refrigerant composition of the present invention, components generally used in cosmetic products, quasi drugs, pharmaceutical products or the like can be mixed if required as long as the effects of the present invention are not impaired. That is, fats and oils, dyes, perfumes, antiseptics, surfactants, pigments, antioxidants, chelating agents, ultraviolet absorbers, ultraviolet scattering agents, polymer-based thickeners, inorganic salts, saccharides, vitamins, plant extraction solutions or the like can be used.

#### Examples

The present invention is explained in detail by using the following Examples, but the scope of the present invention is not limited to these Examples.

Test methods for the "crystal formation inhibition test" and "sensory evaluation test" conducted in the present invention are as follows.

#### Crystal formation inhibition test

A test composition was put in a vessel made of glass, and the vessel was tightly sealed and was then kept at 0° or -10°C for 2 weeks. Formation of crystals was visually determined. Criteria for the determination are as follows:

- ; Complete lack of crystal formation was observed.
- △; Slight crystal formation was observed.
- ×; Substantial crystal formation was observed.

#### Sensory evaluation test

A test composition was applied onto 10 test subjects at a target site. For each criterion, that is, "refreshing feeling", "irritating feeling or the like" and "sticky feeling", the results are shown as the number of test subjects who gave responses, such as "experienced a refreshing feeling", "did not experience an irritating feeling, characteristic odor or the like", "did not experience a sticky feeling" or the like. It

should be noted that although in some of the test compositions, oil component and water separated, tests were conducted by mixing the compositions through shaking.

#### Examples 1 to 3, Comparative Examples 1 to 3 (Test composition)

Test compositions described in Table 1 were produced by an ordinary method, and each of the above-mentioned tests was conducted. The results are also shown in Table 1. Note that values in the following Table are indicated in wt. %.

[Table 1]

Component	Ex. 1	Ex. 2	Ex. 3	Comp. Ex. 1	Comp. Ex. 2	Comp. Ex. 3
2-hydroxymethyl-3,3,5,-trimethylcyclohexanol	3.0	3.0	3.0	3.0	3.0	-
Octyldodecyl lactate	0.5	3.0	5.0	-	3.0	5.0
Dipropylene glycol	10.0	10.0	10.0	10.0	-	10.0
Ethanol	8.0	8.0	8.0	8.0	8.0	8.0
Purified water	Balance	Balance	Balance	Balance	Balance	Balance
Crystal formation inhibition test						
0°	○	○	○	×	△	○
-10°C	△	○	○	×	×	○
Sensory evaluation test						
Refreshing feeling	10	10	10	8	8	0
Irritating feeling or the like	10	10	10	10	10	10
Sticky feeling	8	9	9	6	7	7

As described in Table 1, all the test compositions of the present invention showed excellent test results as compared to those of Comparative Examples which did not contain essential components of the present invention.

#### Example 10 (Lotion)

Lotions having the following components were produced by an ordinary method, and each of the above-mentioned tests was conducted. As a result, the lotions exhibited refreshing feeling which was excellent in terms of persistency and also an adequate usability with no observed irritating feeling or characteristic odor and without any problems in terms of stability over time, such as the formation of crystals.

Name of components	
2-hydroxymethyl- 3,3,5,-trimethylcyclohexanol	5.0
Octyldodecyl lactate	3.0
Polyoxyethylene hydrogenated castor oil (80 E.O.)	2.0
Glycerin	5.0
1,3-butylene glycol	5.0
Ethanol	10.0
Purified water	Balance

#### Example 11 (Cream)

Creams having the following components were produced by an ordinary method, and each of the above-mentioned tests was conducted. As a result, the creams exhibited refreshing feeling which was excellent in terms of persistency and also an adequate usability with no observed irritating feeling or characteristic odor and without any problems in terms of stability over time, such as the formation of crystals.

Name of components	
2-hydroxymethyl- 3,3,5,-trimethylcyclohexanol	2.0
2-hydroxymethyl- 3,5,5,-trimethylcyclohexanol	8.0
Octyldodecyl lactate	5.0
Di(2-ethylhexyl) succinate	3.0
Diisopropyl adipate	2.0
Dipropylene glycol	10.0
Polyethylene glycol 200	10.0
Squalane	3.0
Vaseline	1.0
Paramethoxy-2-ethylhexyl cinnamate	1.0
Glyceryl monostearate	1.0
Polyoxyethylene hydrogenated castor oil (40 E.O.)	1.0
Carboxyvinyl polymer	0.5
Diisopropanolamine	0.2
Methyl paraoxybenzoate	0.1
Disodium edentate	0.1
Perfume	0.5
Purified water	Balance

#### Example 12 (W/O sunscreen)



W/O sunscreens having the following components were produced by an ordinary method, and each of the above-mentioned tests was conducted. As a result, the sunscreens exhibited refreshing feeling which was excellent in terms of persistency and also an adequate usability with no observed irritating feeling or characteristic odor and without any problems in terms of stability over time, such as the formation of crystals.

Name of components

Oil phase component

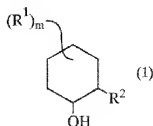
2-(1-hydroxy isopropyl)-5-methylcyclohexanol	30.0
Octyldodecyl lactate	30.0
4-tert-butyl-4'-methoxybenzoylmethane	3.0
2-ethylhexyl paramethoxycinnamate	2.0
Decamethyl cyclopentasiloxane	10.0
Sorbitan monoisostearate	3.0
Palmitic acid	1.0
Aqueous phase component	
Ethanol	5.0
Diglycerin	5.0
Potassium hydroxide	0.2
Methyl paraoxybenzoate	0.1
Purified water	Balance

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## Claims

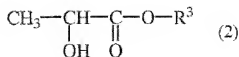
1. A refreshing agent composition characterized in that the composition contains

(A) at least one cyclohexanol derivative represented by the general formula (1):



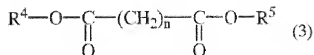
in which,  $R^1$  represents methyl, ethyl or isopropyl which may be substituted with hydroxy, and two  $R^1$  groups may be bonded to the same carbon atom contained in the ring;  $R^2$  represents  $CH_2OH$ ,  $CH(OH)CH_3$  or  $C(OH)CH_3CH_3$ ; and  $m$  represents an integer of 1 to 3;

(B) one or more of the materials selected from lactic acid alkyl esters represented by the general formula (2):



in which,  $R^3$  represents a linear or branched alkyl group of 2 to 18 carbon atoms,

or dibasic acid dialkyl esters represented by the general formula (3):



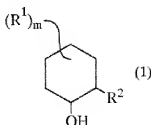
in which,  $R^4$  and  $R^5$  represent an alkyl group of 2 to 18 carbon atoms, and  $n$  represents an integer of 2 to 8;

and (C) one or more polyhydric alcohols.

2. The refreshing agent composition according to Claim 1, in which the component

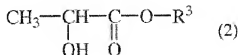
(A) is 2-hydroxymethyl-3,3,5-trimethylcyclohexanol or  
2-hydroxymethyl-3,5,5-trimethylcyclohexanol

3. The refreshing agent composition according to Claim 1 or Claim 2, in which the component (B) is in a liquid form at 20 °C.
4. The refreshing agent composition according to Claims 1 to 3, in which the amount of component (B) is 1/3 or more of the amount of component (A)
5. A cosmetic product characterized in that the product contains  
  
(A) at least one cyclohexanol derivative represented by the general formula (1):



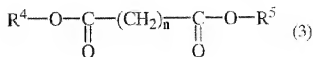
in which,  $R^1$  represents methyl, ethyl or isopropyl which may be substituted with hydroxy, and two  $R^1$  groups may be bonded to the same carbon atom contained in the ring;  $R^2$  represents  $CH_2OH$ ,  $CH(OH)CH_3$  or  $C(OH)CH_3CH_3$ ; and  $m$  represents an integer of 1 to 3;

(B) one or more of the materials selected from lactic acid alkyl esters represented by the general formula (2):



in which,  $R^3$  represents a linear or branched alkyl group of 2 to 18 carbon atoms,

or dibasic acid dialkyl esters represented by the general formula (3):



in which,  $R^4$  and  $R^5$  represent an alkyl group of 2 to 18 carbon atoms, and  $n$  represents an integer of 2 to 8;

and (C) one or more polyhydric alcohols.

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